

**REMARKS**

In accordance with the foregoing, claims 1 – 10 and 13 - 15 are pending and under consideration. No new matter is presented in this Amendment.

**Summary of Interview**

The undersigned Applicants' representative would like to thank Examiner Echelmeyer for the courtesy of a personal interview on January 22, 2010. In the interview, differences between the secondary battery recited in claim 1 and the devices described in the applied references were discussed.

**Rejection of claims 1 – 7, 10 and 15 under 35 U.S.C. §103(a) over Morishita in view of Slezak and Nakanishi**

At page 2 of the Office Action, claims 1 - 7, 10, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Morishita et al. (U.S. Patent No. 5,976,729) ("Morishita") in view of Slezak (U.S. Patent Publication No. 2004/0058234) and Nakanishi et al. (U.S. Patent Publication No. 2002/0142211) ("Nakanishi").

Independent claim 1 recites a secondary battery that includes, among other limitations, a can comprising aluminum or an aluminum alloy and a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$  provided on an outer surface of only the bottom portion of the can and not provided on the side wall of the can. The secondary battery may further comprise a lead electrically connected to a safety device and which is welded to the surface coating, as recited in dependent claim 6.

Morishita relates to a battery including an aluminum can and including a lead plate that is laser welded onto the bottom of the can (see, for example, col. 4, lines 15 – 17 of Morishita. Morishita specifically states at col. 1, lines 28 – 35 that laser welding must be used to attach the lead plate to the bottom of the can, since the insolubility of the lead plate makes it impossible to employ ultrasonic welding and good conductivity of the outer can makes it impossible to employ resistance welding. Morishita also indicates that directly welding a protective circuit by laser welding is disadvantageous, since the protective circuit may be damaged by the laser welding.

As acknowledged by the Examiner, Morishita does not describe a surface coating on the bottom surface of an aluminum or aluminum alloy battery can as recited by amended independent claim 1. In particular, as mentioned above, the "nickel layer" referred to by the Examiner with respect to Morishita is a lead plate that is welded onto the bottom of the aluminum battery can of Morishita. It is respectfully submitted that persons skilled in the art would understand a surface coating to be physically distinct from a welded plate.

Slezak at paragraph [0105], referred to by the Examiner, describes a battery cell that includes a steel can having a nickel plating on the outside surface. In view of the description at col. 1, lines 22 – 24 of Morishita of the disadvantages of a steel can in terms of a greater likelihood of corrosion, it is reasonable to conclude that Slezak provides the nickel plating in order to address the corrosion problem of its steel can and that such nickel plating would include all of the outer surfaces of the can. Since an aluminum can would not have such a corrosion problem (see, for example, col. 1, line 23 of Morishita), there would be no need for the aluminum can of Morishita to have a nickel plating layer as described by Slezak. Accordingly, Slezak does not provide any basis providing the aluminum can of Morishita with a surface coating on an outer surface of only the bottom portion of an aluminum can.

Moreover, the Examiner has not established that a surface coating on an aluminum can surface could be substituted for a plate that is laser welded to an aluminum can surface with a reasonable expectation of success. As noted above, Morishita describes the disadvantages of other types of attachment, such as resistance welding or ultrasonic welding of nickel to aluminum, in teaching that its nickel layer should be laser welded to the aluminum can. There is no indication in Morishita that surface coating of the aluminum can would overcome these disadvantages. Since Slezak only describes forming a nickel plating on a steel can, Slezak does not address the question of whether a surface coating on an aluminum can would overcome the failure of other types of attachment of nickel to aluminum noted in Morishita. Accordingly, because of differences in the materials involved, the combination of Morishita and Slezak does not establish that a surface coating on an aluminum can surface could be substituted for a plate that is laser welded to an aluminum can surface with a reasonable expectation of success.

Nakanishi does not overcome the failure of Morishita to teach or suggest a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$  provided only on an outer surface of the bottom portion of a can of a secondary battery. The Nakanishi reference is applied by the Examiner for its alleged teachings regarding an end cap attached to a battery can by welding, and Nakanishi

contains no teachings relevant to a battery including a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$  provided on an outer surface of only the bottom portion of the can.

Accordingly, the Examiner has not established a *prima facie* case of obviousness of claim 1 over Morishita, Slezak and Nakanishi. Claims 2 – 7, 10 and 15 depend from claim 1 and are allowable for the same reasons.

Therefore the rejection should be withdrawn.

**Rejection of claims 8 and 9 under 35 U.S.C. §103(a) over Morishita in view of Slezak and Nakanishi and further in view of Seiji**

At page 4 of the Office Action, claims 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Morishita in view of Slezak and Nakanishi, and further in view of Seiji (JP 60 124351).

Seiji does not overcome the failure of Morishita, Slezak and Nakanishi to teach or suggest a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$  provided on an outer surface of only the bottom portion of a can of a secondary battery as recited in independent claim 1, from which claims 8 and 9 depend. In particular, Seiji does not teach or suggest any thickness of its nickel or copper layer, and from the description in the Abstract of Seiji, the nickel or copper layer of Seiji appears to be a substantial structural component of the outer side of the battery and clearly is not a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$ . Therefore, combining the secondary battery of Morishita, Slezak and Nakanishi with a nickel or copper structure according to Seiji would not have met all of the limitations of the present claims.

**Rejection of claims 13 and 14 under 35 U.S.C. §103(a) over Morishita in view of Slezak and Nakanishi and further in view of Shibata**

At page 6 of the Office Action, claims 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Morishita in view of Slezak and Nakanishi, and further in view of Shibata et al. (EP 0 899 799 A2).

Shibata does not overcome the failure of Morishita, Slezak and Nakanishi to teach or suggest a surface coating having a thickness of 30  $\mu\text{m}$  to 100  $\mu\text{m}$  provided on an outer surface of only the bottom portion of a can of a secondary battery as recited in independent claim 1, from

which claims 13 and 14 depend. In particular, the layers described in Shibata cover the entire jar can and are not limited to the bottom of the can. Moreover, Shibata explicitly states that its nickel-plated layer is not more than 5  $\mu\text{m}$ . Therefore, combining Morishita, Slezak, Nakanishi and Shibata would not have met all of the limitations of the present claims.

Therefore, the rejection should be withdrawn.

**CONCLUSION:**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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